

Claims

We Claim:

- 1 A wavelength-selective optical transmission system comprising:
- 5 a first waveguide for transmitting a multiplexed optical signal therethrough;
- 10 a second waveguide coupled to said first waveguide wherein a least one of said first and second waveguides having a set of wavelength-selective Bragg gratings disposed near a coupling section between said first and second waveguides wherein one of said first and second waveguides having an aspect ratio defined by a thickness divided by a width is no greater than 0.75.
- 15 2 The wavelength-selective optical transmission system of claim 1 wherein:
- 20 said first waveguide having a larger cross sectional area than said second waveguide.
- 25 3 The wavelength-selective optical transmission system of claim 1 wherein:
- said first waveguide having a smaller cross sectional area than said second waveguide.
- 30 4 The wavelength-selective optical transmission system of claim 1 wherein:
- said first waveguide having a rectangular cross sectional area.
- 5 The wavelength-selective optical transmission system of claim 1 wherein:
- said second waveguide having a square cross sectional area.

6 The wavelength-selective optical transmission system of claim 1
wherein:

5 said first waveguide having a non-square cross sectional area with
a width W and thickness T where and an aspect ratio T/W ranging
from 0.8 to 0.01 and said second waveguide having a substantially
square cross sectional area having a width and thickness equal to
 WT and WT is equal to or greater than T .

10 7 The wavelength-selective optical transmission system of claim 1
wherein:
said first waveguide and said second waveguide are composed of a
same material and having two different shapes of cross sectional
areas.

15 8 The wavelength-selective optical transmission system of claim 1
wherein:
said first waveguide and said second waveguide having two
different optical propagation constants.

20 9 The wavelength-selective optical transmission system of claim 1
wherein:
said Bragg gratings disposed on said first waveguide.

25 10 The wavelength-selective optical transmission system of claim 1
wherein:
said Bragg gratings disposed on said second waveguide.

30 11 The wavelength-selective optical transmission system of claim 1
wherein:
said Bragg gratings disposed on said first and second waveguides.

35 12 The wavelength-selective optical transmission system of claim 1
wherein:
said Bragg gratings disposed on a cladding surrounding said first
waveguide.

13 The wavelength-selective optical transmission system of claim 1
wherein:

5 said Bragg gratings disposed on a cladding surrounding said
second waveguide.

14 The wavelength-selective optical transmission system of claim 1
wherein:

10 said Bragg gratings disposed on a cladding in the gap between said
first and second waveguides.

15 15 A method for configuring a wavelength-selective optical
transmission system comprising:

15 transmitting a multiplexed optical signal through a first waveguide
and coupling a second waveguide to said first waveguide; and

20 forming a set of wavelength-selective Bragg gratings on a least one
of said first and second waveguides near a coupling section
between said first and second waveguides and configuring one of
said first and second waveguides having an aspect ratio defined by
a thickness divided by a width is no greater than 0.75.

16 16 The method of claim 15 wherein:

25 said step of coupling said second waveguide to said first
waveguide further comprising a step of configuring said first
waveguide having a larger cross sectional area than said second
waveguide.

30 17 The method of claim 15 wherein:

35 said step of coupling said second waveguide to said first
waveguide further comprising a step of configuring said first
waveguide having a smaller cross sectional area than said second
waveguide.

18 The method of claim 15 wherein:

5 said step of coupling said second waveguide to said first waveguide further comprising a step of configuring said first waveguide with a rectangular cross sectional area.

19 The method of claim 15 wherein:

10 said step of coupling said second waveguide to said first waveguide further comprising a step of configuring said first waveguide with a square cross sectional area.

20 The method of claim 15 wherein:

15 said step of coupling said second waveguide to said first waveguide further comprising a step of configuring said first waveguide having a non-square cross sectional area with a width W and thickness T where and an aspect ratio T/W ranging from 0.8 to 0.01 and said second waveguide having a substantially square cross sectional area having a width and thickness equal to WT and WT is equal to or greater than T .

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21 The method of claim 15 wherein:

25 said step of coupling said second waveguide to said first waveguide further comprising a step of configuring said first waveguide and said second waveguide composed of a same material and having two different shapes of cross sectional areas.

30 22 The method of claim 15 wherein:

35 said step of coupling said second waveguide to said first waveguide further comprising a step of configuring said first waveguide and said second waveguide having two different optical propagation constants.

23 The method of claim 15 wherein:

5 said step of forming wavelength-selective Bragg gratings on a least one of said first and second waveguides further comprising a step of forming said set of Bragg gratings on said first waveguide.

24 The method of claim 15 wherein:

10 said step of forming wavelength-selective Bragg gratings on a least one of said first and second waveguides further comprising a step of forming said set of Bragg gratings on said second waveguide.

25 The method of claim 15 wherein:

15 said step of forming wavelength-selective Bragg gratings on a least one of said first and second waveguides further comprising a step of forming said set of Bragg gratings on said first and second waveguides.

20 26 The method of claim 15 wherein:

25 said step of forming wavelength-selective Bragg gratings on a least one of said first and second waveguides further comprising a step of forming said set of Bragg gratings on a cladding surrounding said first waveguide.

27 The method of claim 15 wherein:

30 said step of forming wavelength-selective Bragg gratings on a least one of said first and second waveguides further comprising a step of forming said set of Bragg gratings on a cladding surrounding said second waveguide.

35 28 The method of claim 15 wherein:

said step of forming wavelength-selective Bragg gratings on a least one of said first and second waveguides further comprising a step of forming said set of Bragg gratings on a cladding in the gap between said first and second waveguides.

29 A wavelength-selective optical transmission system comprising:

5 a first waveguide coupled to a second waveguide through a set of Bragg gratings wherein said first and second waveguides having different aspect ratios defined by a waveguide thickness divided by a waveguide width.

30 A wavelength-selective optical transmission system of claim 29
wherein:

10 One of said first and second waveguides having an aspect ratio equal to or less than 0.75.